

# THERMAL OBSERVATIONS

By Moe Whittemore

An article printed in the December 1992 issue of Model Builder

Moe Whittemore is the editor of the CIA Informer, the newsletter of the Central Indiana Aeromodellers. He writes:

"Many of you probably use a digital thermometer as your primary or secondary method of spotting the departure of a thermal. I'd like to pass along some of my observations gleaned at a recent contest while using a Radio Shack unit. A question I've pondered is how much temperature rise is enough to get the job done with a model of a specified wing loading? The model I was flying that day was a small unlimited rubber ship (150 square inches) that was capable of not more than 2-1/2 to 3 minutes in indifferent air, and no more than two minutes in bad air.

"The day of the contest, the sky was overcast, and the temperature hovered around 75 degrees, with breezes light and variable. If I can remember right, the three two-minute rounds were easily made. The temperature rise at launch for the three flights averaged approximately .3 degrees above the lowest steady reading. For the three-minute round a temperature of .3 to .4 degrees was waited on and resulted in a thermal sufficient to shove the model up to an altitude that took one minute to fall upon DT from the max.

"For the four-minute round, a temperature rise of .4 to .6 degrees was used. The thermal was even stronger than the previous one, yielding an altitude at DT such that 1 :45 was required for the fall.

"I wasn't so lucky for the five minute round. A dead calm set in. I held a wound motor for nearly 25 minutes, waiting on the air. Temperatures changed only .1 to .2 degrees over this interval, with virtually no wind activity to mark a thermal departure! Finally a temperature rise of .2 to .4 degrees occurred, accompanied by a small bit of wind action. By this time I'd gotten pretty impatient and let the model go, hoping it was smart enough to find something I couldn't. All it found was the one just sensed, and it milked that small thermal for all it could, but was down in just over three minutes.

"A bit later, a .4 to .6 degree temperature rise was plenty to let my hand launch glider max and a .3 to .4 rise was enough to keep it alive for a 105 second flight.

"I guess the point I am trying to make is, between the overcast sky and the light and variable winds that day, I couldn't have picked the air that I did by using only my streamer. I would have missed many opportunities if I relied solely on the streamer pole. With both crutches, you can tell a lot about what's happening with the air; the streamer telling 'what,' and the thermometer how much."